Children's Environmental Health

17. Waterbodies with Elevated Levels of Mercury in Fish Tissue
18. Mercury in Lake Fish Tissue

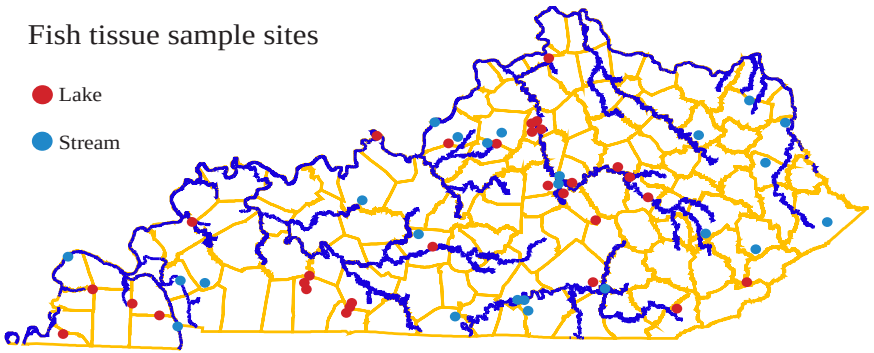
Birth Defects

When mercury is deposited into the water, or runs off the ground into the water, microorganisms convert it to methylmercury, a highly toxic form of mercury. Small organisms take this up as they feed. As animals higher up the food chain eat those small organisms, they also take in methylmercury. The process, known as bioaccumulation, continues with levels of mercury increasing as it moves up the food chain. Fish that are higher in the food chain, such as sharks and swordfish, have much higher mercury concentration than fish that are lower on the food chain. Humans become exposed when they eat fish that are contaminated with mercury.[1]

For most people, the risk from mercury by eating fish and shellfish is not a health concern. The risks from mercury depend on the amount of fish and shellfish eaten and the levels of mercury in the fish and shellfish. The Food and Drug Administration and the Environmental Protection Agency are advising women who may become pregnant, pregnant women, nursing mothers and young children to avoid some types of fish and eat fish and shellfish that are lower in mercury. When pregnant women consume contaminated fish, the mercury passes through the placental barrier to affect the developing fetus.[2] For this reason, women of childbearing age are encouraged to be especially careful to follow consumption advice. Nursing mothers can also pass methylmercury to their child through breast milk.

Forty-six states have now issued fish consumption advisories.[3] Almost 75 percent of the advisories have been issued at least in part because of mercury contamination. The Kentucky Division of Water has been analyzing fish tissue data for mercury since 1995. During the past 8 years, the Division has assessed 157 samples from 27 lakes and 126 samples from 48 streams and rivers for mercury. Of the 27 lakes sampled, 66 percent (18 lakes) had median fish methylmercury concentrations greater than the risk-based state and EPA risk level of 0.12 parts per million (ppm), or a level of one meal per week. Thirty percent (8 lakes), including Lake Cumberland, had maximum levels above the EPA's recommended water quality criterion of 0.3 ppm, or a level of 2-3 meals per month. Kentucky is one of 15 states that has issued a statewide fish consumption advisory due to unsafe levels of mercury. The advisory has been in effect since 2000. The state is advising women of childbearing age and children 6 years and younger to eat no more than one meal per week of freshwater fish from Kentucky rivers, streams and lakes because of the presence of mercury.

Indicator 17. Waterbodies with Elevated Levels of Mercury in Fish Tissue* (1995-2001) endnote



Indicator 18. Mercury in Lake Fish Tissue * (1995-2001) endnote